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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/851,157	05/09/2001	Yasuo Suzuki	35.C15343	2510

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EXAMINER	
PHAM, HAI CHI	

ART UNIT	PAPER NUMBER
2861	

DATE MAILED: 04/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No.	Applicant(s)	
	09/851,157	SUZUKI ET AL.	
	Examiner	Art Unit	
	Hai C. Pham	2861	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *RCE (03/04/05) & Amendment (02/07/05)*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *34 and 35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *34 and 35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Request For Continued Examination

1. The request filed on 03/04/05 for a Continued Examination (RCE) under 37 CFR 1.114 based on parent Application No. 09/851,157 is acceptable and a RCE has been established. An action on the RCE follows.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 34 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawamura et al. (U.S. 4,591,903) in view of Sekikawa (U.S. 6,304,360) and Koide (U.S. 5,181,137).

With regard to claim 34, Kawamura et al. discloses an image forming apparatus (Fig. 1) comprising a first laser unit (10) having a first light source for emitting a first light (laser beam 31) in accordance with image information, a second light source for emitting a second light (laser beam 32) in accordance with image information, a rotational deflecting means (polygon mirror 22) for deflecting the first and second lights emitted from said first and second light sources, a first mirror (mirror 41) for reflecting the first light deflected by said rotational deflecting means, a second mirror (mirror 42)

for reflecting the second light deflected by said rotational deflecting means, a first image bearing member (photosensitive drum 51) onto which the first light reflected by said first mirror is irradiated, a second image bearing member (photosensitive drum 52) onto which the second light reflected by said second mirror is irradiated, a first lens (lens 61) for directing the first light onto said first image bearing member, a second lens (lens 62) for directing the second light onto said second image bearing member, wherein the first light deflected by said rotational deflecting means is reflected at 90 degrees at only one time by said first mirror in a path along which the first light reaches said first image bearing member (only one reflecting mirror 41 being used along the optical path of the first laser beam 31), the second light deflected by said rotational deflecting means is reflected at 90 degrees at only one time by said second mirror in a path along which the second light reaches said second image bearing member (only one reflecting mirror 42 being used along the optical path of the second laser beam 32), a light axis of said first lens is parallel to a light axis of said second lens (the two lenses 61 and 62 being symmetrically arranged about the shaft of the polygon mirror 22 and thus having light axes parallel to each other), and an arrangement pitch between said first mirror and said second mirror is the same as an arrangement pitch between said first image bearing member and said second image bearing member (the set of mirror 41 and corresponding photosensitive drum 51 being symmetrically arranged about the shaft of the polygon mirror 22 with respect to the set of mirror 42 and corresponding photosensitive drum 52).

With regard to claim 35, Kawamura et al. further teaches a third light source for emitting a third light (laser beam 31') in accordance with image information, a fourth light source for emitting a fourth light (laser beam 32') in accordance with image information, a second rotational deflecting means (polygon mirror 22') for deflecting the third and fourth lights emitted from said third and fourth light sources, a third mirror (mirror 41') for reflecting the third light deflected by said second rotational deflecting means, a fourth mirror (mirror 42') for reflecting the fourth light deflected by said second deflecting means, a third image bearing member (photosensitive drum 53) onto which the third light reflected by said third mirror is irradiated, a fourth image bearing member (photosensitive drum 54) onto which the fourth light reflected by said fourth mirror is irradiated, a third lens (lens 61') for directing the third light onto said third image bearing member, and a fourth lens (lens 62') for directing the fourth light onto said fourth image bearing member, wherein the third light deflected by said second rotational deflecting means is reflected at 90 degrees at only one time by said third mirror in a path along which the third light reaches said third image bearing member (only one reflecting mirror 41' being used along the optical path of the third laser beam 31'), the fourth light deflected by said second rotational deflecting means is reflected at 90 degrees at only one time by said fourth mirror in a path along which the fourth light reaches said fourth image bearing member (only one reflecting mirror 42' being used along the optical path of the fourth laser beam 32'), a light axis of said third lens is parallel to a light axis of said fourth lens, and an arrangement pitch between said third mirror and said fourth mirror is the same as an arrangement pitch between said third image bearing member

and said fourth image bearing member (the set of mirror 41' and corresponding photosensitive drum 53 being symmetrically arranged about the shaft of the polygon mirror 22' with respect to the set of mirror 42' and corresponding photosensitive drum 54).

However, Kawamura et al. fails to teach the optical box.

Regardless, it is well known in the art that all the optical components of the laser printer should be accurately mounted to a rigid printer frame in a spaced relationship as evidenced by Sekikawa, which discloses a tandem system full-colored image formation device having the set of light sources, polygon mirror, reflecting mirrors and scanning lenses enclosed in a common optical box (12) (Figs. 1 and 2) (col. 4, lines 1-6).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate the optical box in the device of Kawamura et al. as taught by Sekikawa for the purpose of firmly and stably secure the different components of the printing device in a designated space relationship.

Kawamura et al. also fails to teach the lenses being arranged downstream of the corresponding reflecting mirrors.

Koide discloses a light scanning apparatus comprising four light emitting units (100-103), a polygon mirror (2) for deflecting each of the four light beams toward the corresponding reflecting mirrors (130-133) disposed so as to reflect each of the light beams at an angle of 90 degrees at only one time toward the corresponding scan plane or photoconductive drums (50-53); and wherein a focusing lens (40-43) for correcting

the skew of the scan lines is disposed along the respective optical path between each set of reflecting mirror and photoconductive drum such that the pitch between any sets of the reflecting mirrors, focusing lenses and photoconductive drums is the same (Fig. 5B).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate a focusing lens to be disposed between the respective reflecting mirror and the corresponding photosensitive drum in Kawamura et al. device as taught by Koide. The motivation for doing so would have been to control the focusing size of the light beam in the sub-scanning direction as well as to correct the skew of the scan lines as suggested by Koide at col. 4, lines 17-26. Moreover, by rearranging the scanning lenses as suggested above, the pitch between any sets of the reflecting mirrors, scanning lenses and photosensitive drums would be the same since the optical paths between one reflecting mirror and the corresponding photosensitive drum are parallel to one another and that each of the sets of the reflecting mirrors, scanning lenses and photosensitive drums are aligned on the same optical path between the reflecting mirror and the corresponding photosensitive drum (see Koide, Fig. 5B).

Response to Arguments

4. Applicant's arguments filed 02/07/05 with respect to claims 34 and 35 have been considered but are moot in view of the new grounds of rejection presented in this Office action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai C. Pham whose telephone number is (571) 272-2260. The examiner can normally be reached on M-F 8:30AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on (571) 272-1934. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hai C. Pham

HAI PHAM
PRIMARY EXAMINER

April 1, 2005